a' cont'd

dimensions and availability of magnetic material. Many factors can affect the field strength in the magnet gap. For example, the strength, that is, the energy product BH of the permanent magnet, times the volume of the permanent magnet material, play a large part in determining the field strength in the magnet gap. While increasing the amount of magnetic material will certainly increase the field strength, size limitations on the magnet structure can limit the amount of magnetic material used. Obviously, obtaining better quality magnetic material will also cause an increase in field strength, but obtaining better material drives up the cost of the magnet structure. Certain design considerations can be applied, however, to increase the usable field strength, even while constrained by the quantity and quality of the magnetic material.--

Please replace the paragraph beginning on page 23, at line 4, with the following paragraph:

a2

--The frame 106 includes first and second end plates 124, 126 connected to the respective magnet enclosures 112, 114, a connecting element 128 joining the end plates 124, 126, and first and second support gussets 130, 132, acting as braces between the connecting element 128 and the respective magnet enclosures 112, 114. To provide sufficient stability, the gussets 130, 132 can be attached to the first and second end plates, 124, 126, the magnet enclosures 112, 114, and the connecting element 128. Structurally, the frame 106 keeps the magnet assemblies 102,104 stationary and spaced at a selected distance. The structure of the frame 106 also maintains the relative orientation of the poles 108, 110, such that the pole faces 116, 118 are opposed and substantially parallel, as shown in Figs. 2 and 4. Strictly in respect of the structural requirements of the frame

a2 concld

106, the end plates 124, 126, connecting element 128, and support gussets 130, 132 are made of strong stiff material, such as metal. The support gussets 130, 132 preferably are made from a non-magnetic metal, such as aluminum. As shown in Fig. 5, the gussets 130, 132 can include gusset platforms 134, to provide additional stability in bracing the magnet assemblies 102, 104. Whether the end plates 124, 126 and connecting element 128 are made from a magnetic metal, and particularly from a ferromagnetic material, depends on the functionality required of these frame components, as described below.—

Please replace the paragraph beginning on page 24, at line 22 with the following paragraph:

a3

--The first and second magnet assemblies 202, 204 include respective first and second poles 208, 210 and respective first and second magnet enclosures 212, 214. As shown in Figs. 7 and 8, the poles 208, 210 are disposed on opposing sides of the magnet enclosures 212, 214, such that faces 216, 218 of the poles 208, 210 are substantially parallel and facing each other. The magnet enclosures 212, 214 are filled with magnetic material, which is the magnetic mass that provides the magneto-motive force of the permanent magnet. Each magnet enclosure 212, 214 has an opening through which the magnetic material can be placed into the magnet enclosure and taken out of the magnet enclosure. The magnetic material can take the form of, for example, discrete magnetic elements. These discrete magnetic elements can take any of various forms, such as that of bricks, that is, oblong rectangular shapes, or, as shown in the figures, thin, square, tile-shaped bricks. Alternatively, the discrete magnetic elements can be arcuately shaped, and stacked within the magnet enclosure to form a round magnetic mass. The interior of

A3 concld

the magnet enclosures 212, 214 can be shaped to accommodate discrete magnetic elements of any shape. First and second covers 220, 222 are provided over the respective openings. The covers 220, 222 can be composed of discrete covering pieces, such as strips of material spanning the opening.--

Please replace the paragraph beginning on page 26, at line 3 with the following paragraph:

A4

--The frame 206 includes first and second end plates 224, 226 connected to the respective magnet enclosures 212, 214, a first connecting element 228 joining first ends of the end plates 224, 226, and first and second support gussets 230, 232, acting as braces between the first connecting element 228 and the respective magnet enclosures 212, 214. The frame also includes a second connecting element 234 joining second ends of the end plates 224, 226. Structurally, the frame 206 keeps the magnet assemblies 202, 204 stationary and spaced at a selected distance. The structure of the frame 206 also maintains the relative orientation of the poles 208, 210, such that the pole faces 216, 218 are opposed and substantially parallel, as shown in Figs. 7 and 8. Strictly in respect of the structural requirements of the frame 206, the end plates 224, 226, first and second connecting elements 228, 234, and support gussets 230, 232 are made of strong stiff material, such as metal. The support gussets 230, 232 preferably are made from a non-magnetic metal, such as aluminum. As in the previously-described embodiment, the gussets 230, 232 can include gusset platforms, to provide additional stability in bracing the magnet assemblies 202, 204. Whether the end plates 224, 226 and first and second connecting elements 228, 234 are made from a magnetic metal, and particularly from a

A4 Concld

ferromagnetic material, depends on the functionality required of these frame components, as described below.--

Please replace the paragraph beginning on page 27, at line 1 with the following paragraph:

A5

--Functionally, the end plates 224, 226 can act as flux collector plates. In such cases, the end plates 224, 226 are made from a magnetic material, preferably a ferromagnetic material, and a portion of each end plate 224, 226 facing the respective magnet enclosure 212, 214 is proximate to the magnetic material, and preferably is in contact with the magnetic material. This contact can be made either directly or through mutual contact with an interface element made of a magnetic material, such as a ferromagnetic material. Likewise, the connecting elements 228, 234 can function as flux returns between the flux connector plates. In such cases, the connecting elements 228, 234 are made from a magnetic material, preferably a ferromagnetic material. The addition of the second flux return enables the fabrication of both flux returns from smaller pieces of metal.--

Please replace the paragraph beginning on page 32, at line 20 with the following paragraph:

A6

--As shown in Fig. 13, the magnet structure 300 of the present invention can be arranged such that a first magnet assembly 302 is an upper magnet assembly, and a second magnet assembly 304 is a lower magnet assembly. Thus, according to this arrangement, the first and second frame ends 308, 310 are upper and lower frame ends,

A6 cont'd

respectively. The spacers 312 rest on the lower frame end 310 and support the upper frame end 308. The length of the spacers 312 determines the distance between the upper pole 314 and the lower pole 316, defining the magnet gap 326 therebetween. A footer 328 can be used to raise the magnet structure 300 off the ground, and to isolate the lower frame end 310 from magnetic elements that might be present in the ground, which could affect the homogeneity of the field produced by the magnet structure 300.--

Please replace the paragraph beginning on page 34, at line 14 with the following paragraph:

A7

--The collector plate 330 is made of magnetic material, for example, ferromagnetic material, and provide a flux transmission interface between the permanent magnet insert 334 and the pole 314. A first side of the collector plate 330 faces the permanent magnet insert 334, and can be in direct contact with the magnetic material of the permanent magnet insert 334. Alternatively, a space can be present between the collector plate 330 and the magnetic material, and an intervening material can be present within this space. A second side of the collector plate 330 is in direct contact with the side of the pole 314 that is facing the permanent magnet insert 334. The geometry of the collector plate 330 is such that the side facing the pole 314 is substantially the same shape as the shape of the surface of the pole 314 facing the collector plate 330. Likewise, the side of the collector plate facing the permanent magnet insert 334 has substantially the same shape as that of the facing surface of the permanent magnet insert 334. Thus, for example, if the pole surface facing the collector plate 330 is round, the surface of the collector plate 330 facing the pole 314 is also round. If the surface of the permanent

A7 cont'd

magnet insert 334 facing the collector plate 330 is square, the surface of the side of the collector plate 330 facing the permanent magnet insert 334 is also square. Between its opposite faces, the cross-sectional shape of the collector plate undergoes a transition between the two face shapes, if necessary, to efficiently couple flux transfers between the permanent magnet insert 334 and the pole 314. The collector plate 330 also provides a transition in size between the permanent magnet insert 334 and the pole 314, if necessary. Alternatively, the collector plate 330 is designed physically such that it matches with the permanent magnet insert 334, and a collector interface, preferably made of ferromagnetic material, is disposed between the collector plate 330 and the pole 314 to provide the geometric transition described above.--

Please replace the paragraph beginning on page 36, at line 21 with the following paragraph:

A8

--As shown in Fig. 15, the permanent magnet insert 334 provides a field that is generally directed toward the pole 314. In the example where the permanent magnet insert 334 is composed of individual magnetic bricks, each brick is arranged such that it provides a field component in the general direction 344 of the pole 314, and the cumulative effect of the individual fields is a main field directed toward the pole 314. The field produced by the main array 334 is suitable for use in scanning subject tissue in the gap 326, but could be more effective if directed, or focused, toward a more distinct target area within the gap 326. A secondary permanent magnet insert 342, for example, composed of a second array of magnetic bricks, is provided for the purpose of directing the main field in this manner. For example, as shown, an array of blocking bricks 342 is

a8 cont'd

arranged in front of the main array 334 (with respect to the pole 314) and outside a periphery of the pole 314. The blocking bricks 342 are arranged in an array such that each blocking brick contributes a field component in a direction 346 pointing away from the periphery of the pole 314 and toward a specific area of the pole 314. Thus, the top blocking bricks 342 have the effect of directing the main field toward a specific location in the gap. The quantities and locations of the blocking bricks 342 can be determined such that the overall effect of the secondary field direction 346 produced cumulatively by the individual blocking bricks directs the main field toward a specific location in the gap, that is, focusing the main field to a desired volume within the magnet gap, effectively defining the working magnetic field volume. Defining the working volume in this manner makes more efficient use of the available field.--

<u>IN THE CLAIMS</u>:

Please amend the claims as follows:

a9

1. (Amended) A magnet structure, comprising:

a frame supporting first and second opposing permanent magnet assemblies;

wherein the frame includes

a base,

first and second extensions connected to the base and to the respective first and second opposing permanent magnet assemblies, and

first and second support structures supporting the respective first and second opposing permanent magnet assemblies with respect to the base; and

wherein the first and second opposing permanent magnet assemblies each include